IN THE CLAIMS:

A full listing of the claims, including any amendments made by this paper, follows below:

1-23. (Cancelled)

24. (New) A method for controlling a hydraulic mount for an object having a bounce resonance frequency comprising:

calibrating at least one tunable parameter of a control system of the mount based on the bounce resonance frequency of the object;

generating a first acceleration signal;

generating a second acceleration signal;

determining a relative acceleration across the mount based on the first and second acceleration signals;

generating a control signal responsive to the determined relative acceleration based on the at least one tunable parameter; and

controlling the flow of MR mount fluid in the mount responsive to the control signal such that maximum vibration damping occurs at a predetermined band of frequencies.

25. (New) The method of claim 24 wherein the predetermined band of frequencies occurs at and around the bounce resonance frequency of the object.

26. (New) The method of claim 25 wherein calibrating at least one tunable parameter comprises tuning an objective function obtained by a sensitivity function.

27. (New) The method of claim 26 wherein calibrating at least one tunable parameter comprises tuning a weighting function.

28. (New) The method of claim 27 wherein the weighting function is limited to the bounce resonance frequency.

29. (New) The method of claim 28 wherein calibrating at least one tunable parameter comprises tuning an associated scalable factor.

30. (New) The method of claim 29 wherein the associated scalable factor is used to increase and decrease the magnitude of the weighting function.

31. (New) A system for controlling a hydraulic vibration damping mount for an object having a bounce resonance frequency comprising:

at least one mount, each mount defining a fluid chamber;

means for sensing relative acceleration across each mount;

a tunable control device operably connected to the sensing means for generating a control signal based on the sensed relative acceleration and maximized at a predetermined band of frequencies;

a coil member positioned adjacent to the mount, the coil member operably connected to the control device for generating a magnetic field in the fluid chamber based on the control signal;

wherein the sensing means is a pair of accelerometers positioned such that a first accelerometer is placed on the object and a second accelerometer is placed on a support for the object.

32. (New) The system of claim 31 wherein the at least one mount includes a first and a second mount.

33. (New) The system of claim 32 wherein the first and second mounts are placed between the object and the support in a spaced apart configuration.

34. (New) The system of claim 31 wherein the mount includes magnetorheological mount fluid.

35. (New) The system of claim 34 wherein the coil is positioned to control flow of the magnetorheological fluid between upper and lower chambers of each mount.

36. (New) The system of claim 35 wherein the coil includes an annular coil positioned adjacent at least one passageway through a plate, the plate being positioned between the upper and lower chambers.

37. (New) The system of claim 36 wherein the coil is adapted to impart an increased shear resistance to the magnetorheological fluid when a current is passed through the coil.

38. (New) A system for controlling a hydraulic mount of an object having a bounce resonance frequency comprising:

means for modifying at least one tunable parameter of a control system of the mount based on the bounce resonance frequency of the object;

means for generating a first acceleration signal;

means for generating a second acceleration signal;

means for determining a relative acceleration across the mount based on the first and second acceleration signals;

means for generating a control signal responsive to the relative acceleration based on the at least one tunable parameter; and

means for controlling the flow of MR fluid in the mount responsive to the control signal such that maximum vibration damping occurs at a predetermined band of frequencies.

39. (New) The system of claim 38 wherein the predetermined band of frequencies occurs at and around the bounce resonance frequency of the object.

40. (New) The system of claim 39 wherein the means for tuning at least one tunable parameter comprises an objective function obtained by a sensitivity function.

41. (New) The system of claim 40 wherein the means for tuning at least one tunable parameter comprises a weighting function.

42. (New) The system of claim 41 wherein the weighting function is based on the bounce resonance frequency.

43. (New) The system of claim 42 wherein the means for tuning at least one tunable parameter comprises an associated scalable factor.

44. (New) The system of claim 43 where the associated scalable factor is used to increase and decrease the magnitude of the weighting function.

45. (New) A control system for a hydraulic mount for a vibrating object comprising:

means for generating a first acceleration signal;

means for generating a second acceleration signal;

means for determining a relative acceleration across the mount based on the first and second acceleration signals;

means for generating a control signal corresponding to the relative acceleration;

means for controlling the flow of MR fluid in the mount responsive to the control signal;

means for tuning the control system such that maximum vibration damping occurs at and around the bounce resonance frequency of the object.